

Environmental Assessment

Provision of a Wastewater Collection System for B & C Colonia, Yuma County, AZ

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&
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by
Stantec Consulting, Inc.

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1.0 Background

1.1 Introduction

The Border Environment Cooperation Commission and United States Environmental Protection Agency provide funds for needed water and wastewater projects located within 100 kilometers (km) of the border between Mexico and the United States. The proposed Federal action being reviewed for funding is the provision of wastewater services to the B&C Colonia in Yuma Arizona. The Colonia is bounded by Avenue B on the east and Avenue C on the west; 1st Street on the north and 8th Street on the south. The area covers approximately 512 acres and includes 838 house lots (see Figures 1, 2 and 3). In 2003, a feasibility analysis and cost estimate for the engineering design of a sewage system for the Colonia was prepared for review by the Border Environment Cooperation Commission (Hazen and Sawyer 2003). This study described the need to upgrade utilities in the project area. By definition, a Colonia is an area with substandard water and wastewater services which results in poor conditions. The feasibility analysis investigated several alternatives for improving the conditions at the Colonia, concluding that the most effective alternative would connect a new collection system to an existing interceptor (Alternative 2). The other viable alternative (Alternative 3) would be to construct a collection system totally independent of other entities or utilities by placing new interceptors adjacent to existing interceptors in order to pipe wastewater directly to the Figueroa Water Pollution Control Facility (WPCF).

1.2 Environmental Assessment Process

This environmental assessment follows the NEPA and EPA regulations Title 40 Code of Federal regulations (CFR) Part 6 for environmental impacts in the U.S. from projects located in the U.S. or Mexico (EPA 1997a). It was also prepared using Council of Environmental Quality (CEQ) regulations as guidance. This assessment documents the anticipated environmental consequences of the proposed Federal action.

1.3 Purpose And Need For The Proposed Action

The B&C Colonia is an area lacking potable water and a sewer system. This has resulted in a number of instances of health and safety issues. Residents rely upon septic systems which have failed on a number of occasions. Yuma County has documented an average of 25 complaints per year regarding septic tanks. The complaints have been for overflows resulting in surface pooling (22%), backups in homes (20%), and for odor (47%). Of the 838 properties in the project area, 30% have cesspools. Surveys indicate that 24% of residents have never pumped their systems. Some properties have both cesspools and septic systems, indicating that residents have illegally dug cesspools in order to handle the overflow from existing septic systems (BECC BEIF/PDAP

Prioritization Process). The issues related to septic system overflows and pooling, combined with a very high water table, present a strong need for the provision of a wastewater collection and conveyance system.

Existing sewer pipes found within and surrounding the project area include:

Diameter (inch)	Length (ft)	Material (*)
3	627	PVC (private system)
3	2,332	PVC (private system)
4	1,867	PVC, VCP (house connections)
6	257	PVC, VCP
8	6,067	PVC
10	233	NONE
12	112	VCP
27	1,820	VCP
30	1,431	VCP
42	5,106	RGRCP, RCP, PVC, VCP

(*) Note: VCP = Vitrified Clay Pipe; PVC = Poly VinylChloride Pipe; RGRCP = Rubber Gasket Reinforced Concrete Pipe; RCP = Reinforced Concrete Pipe.

Source: Sanitary Sewer Collection System, August 2001. City of Yuma, Department of Public Works; Engineering Division.

The existing wastewater treatment facility for this area is located on Figueroa Avenue and utilizes the activated sludge treatment process to remove organic matter, suspended solids, and carbonaceous biological oxygen demand (BOD). The effluent is eventually discharged into the Colorado River after disinfection by chlorination. The sludge in the form of solids is anaerobically digested and stabilized. The Figueroa facility currently (2006) has a capacity to treat twelve million gallons per day (Susanna Hitchcock, Personal Communication).

The service area covers approximately 512 acres. The 838 lots cover approximately 447 acres (approximately 87% of the area). It is under both county and city jurisdiction as follows:

Jurisdiction	Number of parcels	Area (acres)	%
City of Yuma	57	42.92	9.6
County	781	404.52	90.4
Total	838	447.44	100.00

Source: GIS department of the city of Yuma

The city of Yuma's wastewater service area covers most of the land area around the Colonia. The Colonia could be included within the city's service area boundaries with an amendment to the City of Yuma 208 plan.

The existing Figueroa Avenue WPCF currently serves both city and county customers. Constructed in 1955, major design and construction projects have improved the facility. The City's Master Plan for Water Pollution Control Facility Expansion includes a projection that at ultimate build-out the Yuma Service Area will generate an average dry weather flow (ADWF) of approximately 24 mgd of wastewater. The Master Plan also indicates that a reasonable limit for development of treatment facilities on the existing Figueroa Avenue WPCF site is 25 mgd (Hazen and Sawyer, 2-5).

The city's sewer coverage in the project area is currently only 8% of the total lots. The remaining 92% of the lots are mostly utilizing septic systems. The city requires that, once services are provided to an area, that existing septic systems be abandoned. Specific procedures must be performed including preparation of required paper work.

The city of Yuma provides drinking water to residents originating from surface water in the Colorado River north of the Imperial Dam. Two facilities manage water from the Colorado River, including the Main Street water treatment facility and the Yuma Mesa East water treatment facility. The Colonia is primarily supplied by the Main Street water treatment facility. The supplied water meets all Federal water quality standards. The city's water distribution system covers 67% of the total lots within the study area. The remaining 33% primarily use private wells.

Population projections support a need for the project. Yuma County has a population of over 138,000 persons (Census 2000). In the year 2003, the Colonia had a population of 5,170 (Hazen and Sawyer 2003). Based upon dwelling units per acre in the project area, it has been projected that the population of the Colonia will increase approximately 22% in the next ten years, after which it will continue to increase at an approximate 1% per year. The ten year time period is based on build out of the 512 acres which includes attainment of the projected residential density (see Section 3.1.2). Currently, approximately 76 acres are undeveloped. The proposed project was designed to handle the peak loads and to transport minimum loads at a velocity required to support cleaning action and to meet state standards. Projections indicate that by the year 2018 the average wastewater flow will reach approximately 0.8 million gallons per day from the Colonia. In the same year, it is also projected that the peak wastewater flow will reach 2.43 million gallons per day from the Colonia (Hazen and Sawyer 2003). The capacity of the Figueroa plant is configured to provide twelve (12) million gallons per day and current usage is approximately eight (8) million gallons per day. Therefore, the Figueroa plant has the additional capability to manage 33% more wastewater. In addition, the east Mesa facility has a capacity of three (3) million gallons per day and will soon be expanded to six (6) million gallons per day. The projected improvements are therefore well within the capacities of the existing facilities.

If the project is not implemented, the population will continue use of aging septic systems on individual lots, where public health is at risk due to potential contamination of both surface and groundwater.

1.4 Scope Of This Environmental Assessment

This EA focuses on evaluating environmental alternatives for the construction of wastewater facilities for the B&C Colonia. It analyzes the direct, indirect, secondary, and cumulative impacts potentially resulting from its construction and operation.

A number of primary considerations must be investigated, resulting from relevant Federal laws and Executive Orders (EO) that include:

National Natural Landmarks

A number of National Natural Landmarks have been designated across the country under the authorization of the Secretary of the Interior. The landmarks are listed on the National Registry of Natural Landmarks under the Historic Act of 1935, 16 U.S. Code (USC) 461 *et seq.* Information regarding the location and descriptions of National Landmarks is maintained by the National Park Service. No National Landmarks were identified within the project area.

Cultural Resources Data

Cultural resources are protected by the Archaeological and Historic Preservation Act (AHPA) of 1974, 16 USC 469 *et seq.* Protection of resources may include either avoidance of significant cultural resources, or data recovery prior to project initiation. Consultation with the Arizona State Museum (ASM), the Arizona State Historic Preservation Officer (SHPO), and American Indian tribes are discussed in Section 3.3 of this EA.

Cultural Resources

Federal agencies are directed to include historic preservation planning into all activities related to land use, under the National Historic Preservation Act (NHPA), as amended, 16 USC 470. The Act is administered by the National Park Service, the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), and each Federal agency. Federal agencies must take into consideration the impact that an action may have on historic properties that are included on, or are eligible for inclusion on, the National Register of Historic Places (NRHP). Regulations include 36 CFR 800: regulations of the Advisory Council on Historic Preservation governing the NHPA section 106 review process. This process is normally carried out as a formal consultation with the SHPO, the ACHP, and other interested parties such as Indian tribes, who have knowledge of, or interest in historic resources in the area of the proposed project. Consultation with the Arizona SHPO, the ASM, and American Indian tribes are discussed in Section 3.3.

Wetlands Protection

Under Executive Order 11990, "Protection of Wetlands" of 1977, Federal agencies are required to avoid adverse impacts associated with destruction or loss of wetlands if practicable alternatives exist. No wetlands will be impacted by the proposed action.

Floodplain Management

Under Executive order 11988, “Floodplain Management” of 1977, Federal agencies are required to evaluate potential effects resulting from activities located within a floodplain. The proposed action is not located within the 100 year flood plain.

Important Farmlands

The Environmental Protection Agency (EPA) has a policy to protect environmentally significant agricultural lands from conversion to other uses, as that conversion results in a loss of an environmental or essential food production resource. In addition, the Farmland Protection Policy Act (FPPA) 7 USC 4201 *et seq.*, as well as the U.S. Department of Agriculture’s implementing procedures require all agencies to consider the potential for adverse effects on prime and unique farmland of state or local importance. Although farmland exists within the Colonia, it is not considered prime, unique, or important.

Coastal Zone Management Act

Under the Coastal Zone Management Act (CZMA), 16 USC 1451 *et seq.*, Federal agencies must be consistent with approved state coastal zone management programs in coastal areas. The proposed action is not within a coastal area.

Coastal Barriers Resources Act

Under the Coastal Barriers Resources Act (CBRA), 16 USC 3501 *et seq.*, Federal funding may not be used to develop ecologically sensitive U.S. coastal barriers. There are no coastal barriers near the project area.

Wild And Scenic Rivers

The National Wild and Scenic Rivers System was established under the Wild And Scenic Rivers Act (WSRA), 16 USC 271 *et seq.* These areas, as well as those designated on the national river’s inventory are protected by the Act. There are no designated Wild and Scenic Rivers within the project area.

Fish and Wildlife Protection

Under the Fish and Wildlife Coordination Act (FWCA), 16 USC 661 *et seq.*, Federal agencies that plan actions that may modify a natural stream or body of water for any purpose must protect the fish and wildlife resources that could be affected by the proposed action. There are no streams or water bodies that will be modified by this project.

Endangered Species Protection

Agencies may not adversely affect threatened or endangered species or habitats essential to their survival under the Endangered Species Act (ESA), 16 USC 1536 *et seq.* Impacts to endangered species are evaluated in Section 3.2.3 of this EA.

Wilderness Protection

Under the Wilderness Act (WA), 16 USC 1131 *et seq.*, protection for wilderness areas was established as a policy for designated National Wilderness Areas. Specific installations and activities, such as motorized equipment, structures, roads, aircraft

landings, and others, are not allowed within designated Wilderness Areas. The proposed project is not located in a designated Wilderness Area.

Air Quality

Federal actions must conform to any state implementation plan approved under Section 110 of the Clean Air Act (CAA). A conformity determination must be met when emissions occur in a non-attainment area. Impacts to air quality from the alternatives are evaluated in Section 3.1.1 of this EA.

Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," advises federal agencies to identify and address, when feasible, disproportionate adverse impacts on minority or low-income populations. These considerations are presented in Section 3.9 of this EA.

2.0 Project Description And Alternatives

2.1 Current Conditions

The project area of concern is an unincorporated area that is bounded by Avenue B on the east, Avenue C on the west, 1st Street on the north and 8th Street on the south, in Yuma, Arizona. The majority (83%) of the dwellings within this area rely on the use of septic systems. The septic systems include drainage fields that are located on each individual property. The high water table, combined with the aging septic systems, has caused several septic system failures. A number of citizen complaints have been received by both the City of Yuma and Yuma County as a result of this situation. There are currently approximately 234 cesspools located in the colonia. The current failure of several septic systems has raised concerns over an obvious public health hazard.

2.2 Description Of Alternatives

An engineering feasibility study was conducted in 2003 in order to develop alternatives for the provision of wastewater conveyance facilities for the Colonia (Hazen and Sawyer 2003). At that time, four alternatives were suggested:

- Alternative 1: Gravity collection system, connecting to the existing interceptor.
- Alternative 2: Gravity collection system and lift stations, connecting to the existing interceptor.
- Alternative 3: Gravity collection system and lift stations, connecting to a new interceptor line to the existing Figueroa Avenue WPCF.
- Alternative 4: Replacement of septic facilities

Description of Alternative 1: Gravity collection system connecting to existing interceptors

This alternative is based on the construction of a gravity collection system that would be connected to an existing receiving manhole. Wastewater from each house would be

routed by gravity piping to main collection pipes along public rights of ways. The pipes would convey the flow, again by gravity, to an existing interceptor located along Avenue B and C. The success of this type of system would rely very much on the topography of the area, as minimum slopes are required for this system to function properly. In order to prevent solids from settling and obstructing the pipes, a minimum velocity of two feet per second would have to be maintained. A study of this proposed alternative identifies the following advantages: 1) simple operation and construction, 2) proven technology, 3) low maintenance cost, and 4) the advantage of utilizing existing interceptor lines. Disadvantages identified were: 1) costly construction in relation to the size of the system, 2) the requirement for excavation of large, deep trenches, 3) the requirement for dewatering during construction, and 4) the fact that some areas would require pump stations (Hazen and Sawyer 2003). After engineering examination, this alternative was deemed not feasible for two areas within the site, as existing topography and the elevation of the existing interceptor did not meet the minimum slope requirements. This alternative was therefore eliminated from further consideration. The selection of this alternative would require permission from the city of Yuma, for use of the existing interceptor system.

Alternative 2: Gravity and lift stations collection system, connecting to the existing interceptor

This alternative would operate under the basic premise as Alternative 1, but would add pump stations for the areas that could not reach the interceptors through gravity flow.

As with Alternative 1, Alternative 2 is also based on the construction of a gravity collection system that would be connected to an existing receiving manhole. Wastewater from each house would be routed by gravity piping to main collection pipes along public rights of ways. The pipes would convey the flow, again by gravity, to an existing interceptor located along Avenue B and C. The success of this type of system would rely very much on the topography of the area, as minimum slopes are required for this system to function properly. However, unlike Alternative 1, this alternative also includes pump stations to allow coverage of the entire colonia. A study of this proposed alternative identifies the following advantages: 1) simple operation and construction, 2) proven technology, 3) low maintenance cost, and 4) the advantage of utilizing existing interceptor lines. Disadvantages identified were: 1) costly construction in relation to the size of the system, 2) the requirement for excavation of large, deep trenches, 3) the requirement for dewatering during construction, and 4) the fact that some areas would require pump stations (Hazen and Sawyer 2003). The selection of this alternative would require permission from the city of Yuma, for use of the existing interceptor system.

Three new lift stations would be placed such that the required excavation depth of the gravity pipes could be minimized. A hydraulic model was run to ensure that this alternative would not cause the capacity of the existing collection system to be exceeded (Hazen and Sawyer 2003).

Description of Alternative 3: Gravity and lift stations collection system, constructing new interceptor lines and connecting to the existing Figueroa Avenue WPCF.

This alternative is similar to Alternative 2, however there would be two new interceptors running parallel to the existing ones on Avenue B and C, to convey the flow by gravity to the existing Figueroa avenue WPCF. The advantage of this alternative is that it would be an independent system and would not impact the reserve capacity of the existing facilities. The disadvantages of this alternative include higher cost, the need for deeper excavation, and the construction of a new interceptor on existing congested roadways. Use of lift stations would allow for the installed pipelines to be placed in relatively shallow trenches, thereby potentially reducing the cost of excavation. This alternative would require construction of 14 new lift stations. The selection of this alternative would require permission from the city of Yuma, for use of the existing interceptor system.

Description of Alternative 4: Replacement of septic facilities

This alternative would provide for removal and replacement of the existing inadequate septic systems. New systems would be installed on 770 lots. This alternative would be attractive from a cost perspective; however, it would not allow attainment of project goals. Septic systems have failed in the project area in the past and there is no guarantee that they would not continue to fail. Even with new systems, the basic concern regarding the high water table would continue. The continued concern regarding health risks through potential contamination of both surface and groundwater eliminates this alternative from consideration. It is therefore not considered further as a viable alternative.

In addition to Alternatives 2 and 3 presented and considered by Hazen and Sawyer (2003), this environmental assessment also addresses the No Action alternative:

Description of Alternative 5: No Action

There are no improvements to the current system under Alternative 5. The current impacts to the area would continue, as the project would not be designed or constructed. Individual on-site septic systems would continue to be used. This will result in continued leakage, possibly resulting in contamination of both surface water and ground water.

3.0 Affected Environment And Environmental Consequences

3.1 Physical Environment

3.1.1 Air Resources

Affected Environment

The City of Yuma lies within a non-attainment area. A non-attainment area is an area that exceeds any National Ambient Air Quality Standard (NAAQS) for any pollutant revealed through air quality monitoring (ADOT 1995).

Suspended Particulate Matter (PM₁₀) is the pollutant that has exceeded the NAAQS in the area. This includes liquid and solid particles of various compositions with diameters of 10 microns or less. Particulates this small are of concern because they can cause various health effects after becoming lodged in the lungs.

Carbon Monoxide (CO) is the primary concern of the vehicular-emitted air pollutants. It is a project-specific concern because of its potential hazard to public health at excessive concentrations. Hydrocarbons (HC), Ozone (O₃), and Nitrogen Oxides (NO_x) air quality concerns are regional in nature and involve complex atmospheric chemistry leading to the formation of O₃ (Logan, Simpson, Dye 1997).

Environmental Consequences

Under the No Action Alternative, construction and operational activities that result in particulate matter and hydrocarbons emissions would not occur, as the proposed improvements to the Colonia wastewater collection system would not be implemented.

Construction and operation improvements associated with Alternatives 2 and 3 have the potential for both short and long-term impacts to air resources in the project area. During construction, fugitive emissions will be produced by earthmoving equipment and vehicular traffic traveling throughout the construction site. The use of appropriate construction best management practices will minimize the generation of dust and fine particulate matter. Quantities of these emissions will also vary based upon the types and level of activities occurring during construction and the weather conditions.

Vehicular emissions will be produced by construction equipment and other vehicles on the site during construction and operation for all but the No Action Alternative. These emissions would include small amounts of Carbon Monoxide, hydrocarbons, and nitrogen oxides. Any construction that would interrupt normal flow of traffic through, or around the project area (re-routing, stop and go traffic, lower speeds, stalled traffic and idle engine emissions) would also increase the emission of carbon monoxide, hydrocarbons and nitrous oxides. Efficient traffic control measures will effectively control this temporary impact.

Atmospheric dispersion and a low density of emissions would significantly decrease the impact of vehicular emissions offsite.

Alternatives 2 and 3 may also have very minor indirect, or secondary, impacts on air quality as they will accommodate a minor increase in population. This could result in additional vehicular emissions and construction dust. However, because the projected population growth is estimated to be small (a projected growth of approximately 1,137 people in the next 10 years), the impact is expected to be insignificant.

3.1.2 Water Resources

3.1.2.1 Surface Water

Affected Environment

The watershed area is comprised of relatively flat residential land, with a few farm plots. The general slope of the land is to the south. The land surrounding the project area is a mix of residential properties. The surface water resources in the vicinity include the West Main Canal, which provides irrigation water to the Yuma Valley Irrigation District (U.S. Bureau of Reclamation, 2001). Drainage ditches provide shallow groundwater relief to surrounding areas in addition to providing storm water disposal. The water table varies from a depth of 0.8 - 4.8 meters (2.5 - 16 feet) over the Yuma Valley. The Colorado River flows west to east approximately one-half (.5) mile north of the project area.

The City of Yuma obtains drinking water supplies from the Colorado River upstream from Imperial Dam. Approximately 67% of the lots in the project area receive water through the City's distribution system, while approximately 33% of the lots have private wells (Hazen and Sawyer 2003). Water quality meets all federal drinking water standards.

Environmental Consequences

The existing operational activities of the on-site septic systems would remain the same with the implementation of the No Action Alternative. Construction activities associated with the improvements of the wastewater collection system would not occur. Without access to a sewer system, the population would continue discharging wastewater into overloaded and failing on-site septic units, adding to the risk of surface pooling of contaminated untreated wastewaters in the community. Under the No Action Alternative, short-term and long-term direct adverse impacts to water quality would increase in the project area. This would be compounded by continuing increases in population within the colonia.

The environmental consequences associated with construction of either Alternative 2 or 3 would address the issues of failing and overloaded on-site treatment units, and provide beneficial short and long-term impacts to surface water quality by eliminating the need for septic systems.

The environmental consequences associated with construction and operation activities associated with Alternatives 2 and 3 would have minimal short-term, and no long-term direct or indirect impacts to the surface water resources in or around the project area. Minor impacts related to pollution caused by storm water runoff could occur either on the Lower Colorado River or the West Main Canal. This potential will be eliminated by applying Best Management Practices in the control of storm water during construction. Construction activities associated with alternatives 2 and 3 would require excavation in

order to install the required pipeline networks. The wastewater line construction activities must be monitored on a daily basis in order to avoid any possible contamination at the construction site. Implementation of neither Alternative A or Alternative B would cause the City to violate its current NPDES permit. New permit standards are being applied in the future, but partnering arrangements are in effect for research regarding water quality requirements of the Colorado River. This will ensure cooperation for meeting future standards. Capacity at the Figueroa WWTP is 12 mgd, and current treatment is 7 mgd. The two interceptors have capacities of 5 mgd (48" pipe) and 7 mgd (54" pipe). Most of the population growth in Yuma is on the opposite side of town, which is now served by a separate facility. Therefore, capacity exists at the Figueroa WWTP to accommodate the construction of either alternative.

Significant direct or indirect adverse impacts would not be anticipated to surface water in the short or long-term with the implementation of either of the action alternatives.

3.1.2.2 Groundwater

Affected Environment

The Yuma Groundwater Basin is the source of water supplying the remaining (approximate) 33% of the lots in the project area. There is currently no reliable data regarding amount of production from wells on the property, or data regarding water quality specifically within the project area, however, numerous wells throughout Yuma have a history of specific constituents (Total Dissolved Solids, chlorides and sulfates) exceeding federal drinking water standards.

This is significant from the public health and environmental perspectives. The growing populations in the areas of the Yuma Basin are becoming more dependent on this resource for all water requirements. The groundwater in the Yuma Groundwater Basin is of lower quality than the surface water of the Colorado River because of leaching of soil and subsoil saline materials, fertilizers and soil amendments (EPA 2002a). Total Dissolved Solids (TDS), chlorides and sulfates cause water to have an unpleasant taste and/or odor. As a result, many domestic residences served by this groundwater have treated water delivered to their homes or have a reverse osmosis filtration system for supplemental household purposes such as drinking and cooking. Leaking cesspools and overloaded septic systems have the potential to contaminate groundwater with human pathogens, creating a health risk for users of the groundwater (EPA 2002a).

Environmental Consequences

The No Action Alternative would allow the potential for contamination of the groundwater to occur, or continue to occur. Activities associated with the proposed improvements to the on-site treatment systems would not occur. Untreated wastewater leaking from the septic units could increase if more residents do not maintain their units and continue to discharge wastewater into failing septic systems and leaking cesspools. In the long-term, adverse impacts to groundwater could occur because of the potential for

contaminant infiltration from the failing systems. This would be a direct, adverse effect on the groundwater. Negative long-term impacts to groundwater quality are expected with the implementation of the No Action Alternative.

Alternatives 2 and 3 would result in short-term and long-term direct and indirect positive impacts to the quality of the groundwater. The potential exists that failed septic systems in the project area cause infiltration of wastewater to the groundwater aquifer. Although no evidence of this currently exists, the groundwater table is located only four to ten feet beneath the surface, indicating a strong likelihood of conveyance through the soil. This reduction of potential infiltrating wastewaters will have the positive impact of reducing the potential conveyance of pollution to the high water table. In the short-term, the proposed implementation of the wastewater collection system would lessen the potential for leaking of wastewater into the aquifer by replacing the failing septic units with the proposed sewer system. In the long-term, potential contamination of groundwater currently used to supply approximately one third of the required drinking water in the project area could be avoided with the implementation of either of the action alternatives.

3.1.3 Soils And Land Use

Affected Environment

The current land use in the project area is as follows:

Land Use	Acres	%
Low Density Residential	242.52	54.3
Medium Density Residential	121.21	27.0
High Density Residential	1.88	.4
Commercial	5.03	1.1
No Use	76.78	17.2

The planned land use primarily increases the amount of Medium Density Residential:

Projected Land Use	Acres	%
Low Density Residential	250.7	56.0
Medium Density Residential	182.97	40.9
High Density Residential	1.88	.4
Commercial	5.79	1.3

(Adapted from Hazen and Sawyer)

Soil types within the project area include Gadsden Clay, Holtville Clay and Indio Silt Loam. All three types are described as deep and well-drained. These three soil types have slow to moderate permeability and are described as severely limited for the use of septic tank absorption fields (USDA 1980).

Environmental Consequences

The No Action Alternative would continue to cause adverse impacts to soil from improperly maintained or leaking septic systems, and may increase in the future with the possibility of more failing systems.

There are no anticipated adverse impacts to soil or land use for either of the action alternatives. The entire project area has been heavily disturbed. Construction activities would occur only in urban areas and along the highway right-of-way, or in areas that have been previously used for agricultural production where these resources have already been disturbed. Soils obtained from construction activities would be utilized to fill up the trenches. Any adverse effects to land use would be temporary and insignificant.

Construction of either Alternative 2 or 3 would not be expected to promote significant conversion of farmland to other uses, as only a few farm plots exist in the project area.

3.2 Biological Environment

The biological environment includes the biotic or living components of the ecosystem present within the project area. Biotic components include wildlife; vegetation; special aquatic sites such as wetlands; and threatened, endangered or other special status species. The affected environment and environmental consequences for each of these components are described below.

3.2.1 Vegetation and Wetlands

Affected Environment

The project area is an urban area, including several farm plots. It is located within the arid Lower Colorado River Valley Subdivision of the Sonoran Desert. Because of both low precipitation and high temperature, this subdivision is the driest of the Sonoran Desert subdivisions. In the undisturbed areas of the surrounding region, native plant growth is typically open and simple, with wide spaces between plants reflecting the intense competition for scarce water resources. Creosote Bush (*Larrea tridentata*) is the characteristic shrub species in the subdivision, while Honey mesquite (*prosopis glandulosa* var. *torreyana*), Palo Verde (*Cercidium floridum*) and Ironwood trees (*Olneya tesota*) are typical tree species in natural and man-made drainages. Sand dunes are characteristic features of some undeveloped areas. However, for the project area, human use has eliminated the natural vegetation.

Environmental Consequences

No vegetation communities would be impacted resulting from the No Action Alternative because the construction activities associated with the proposed wastewater collection system improvements would not occur. Operation of the existing septic systems would remain the same. Direct and indirect long-term impacts would not occur on vegetation

with the implementation of the No Action Alternative.

The primary direct effect of the two action alternatives would be the potential temporary loss of landscape vegetation. All construction and operation activities would occur on previously disturbed urban land areas. It is estimated that a very small area would be impacted by vehicle equipment during the construction of the pipe alignments. Long-term direct and indirect impacts to vegetation communities are not likely with the implementation of any of the alternatives.

3.2.2 Wildlife

Affected Environment

The common species known to exist within and near riparian habitat closer to the lower Colorado River include; vermilion flycatchers (*Pyrocephalus rubinus*), brown-crested flycatchers (*Myiarchus tyrannulus*), Abert's towhees (*Pipilo averti*), summer tanagers (*Piranga rubra*), Bell's vireos (*Vireo vellii*), yellow-breasted chats (*Icteria virens*), northern orioles (*Icterus galbula*), northern flickers (*Colaptes auratus*), ladder-backed woodpeckers (*Picoides scalaris*), Gila woodpeckers (*Melanerpes uropygialis*), mourning doves (*Zenaida macroura*), Gambel's quails (*Calipepla gambelii*), least bitterns (*Ixobrychus exilis*), Whitewinged doves (*Zenaida asiatica*), American bitterns (*Boraurus lentiginosus*), Virginia rails (*Rallus limicola*), Sora rails (*Porzana Carolina*), long-billed marsh wrens (*Telmatodytes palustris*), yellowthroats (*Geothlypis trichas*), white-faced ibis (*Plegadis chihi*), great blue herons (*Ardea herodias*), and great egrets (*Casmerodius albus*).

Larger mammals existing in the project area include coyotes (*Canis latrans*), striped skunks (*Mephitis mephitis*) rabbits (*Sylvilagus* and *Lepus spp*), squirrels (*Citellus spp*, and *Ammospermophilus spp.*) and bobcats (*Felis rufus*). The project area may contain burrowing rodents including the Round-tailed Ground Squirrel (*Spermophilus tereticaudus*) as well as various mice and rat species (Anderson and Ohmart 1982, Ohmart et al. 1988). Most of the mammals that do exist have adapted to high daytime temperatures by remaining underground or estivating during the hottest months.

Limited data has been gathered for reptiles and amphibians in the lower Colorado River regions. As of 1988, fifty-five species of reptiles and amphibians have been documented from the lower Colorado River area. Some of these were non-native introductions (Ohmart and Anderson 1988). However, there are a number of unique sand-adapted lizards and snakes generally found only in this subdivision. Some of the many notable species found in the project area are the Banded Sand Snake (*Chilomeniscus cinctus*) fringed-toed lizards (*Uma inornata*, *U. notata*), the Sidewinder (*Crotalus cerastes*) and Western Whiptail (*Cnemidophorus tigris tigris*). Most reptiles and amphibians that could occur in the general area, either prefer riparian/aquatic type habitats, or upland sites that are typically more arid (EPA 2002a).

Environmental Consequences

Under the No Action Alternative, wildlife communities in the general area would not be directly or indirectly affected because construction would not occur. Operation of the existing on-site systems would remain the same. Direct and indirect long-term impacts would not occur on wildlife with the implementation of the No Action Alternative.

It is not anticipated that any direct effects to wildlife communities nor potential loss of wildlife habitat would occur during construction and operation activities. Wildlife communities in the project area are limited to local bird species adapted to urban plantings, and to rodents and reptiles in the farm plots. The trenching and laying of pipes would occur at sites and properties that are currently in use, thus avoiding disturbance of wildlife habitat. During construction activities associated with the implementation of these alternatives, some mobile animals would escape to areas of similar habitat. Although unlikely, sedentary animals which utilize burrows (amphibians, lizards, and small mammals) could be lost. Long-term and short-term direct and indirect impacts to wildlife communities with the implementation of the action alternatives would not be significant.

3.2.3 Threatened And Endangered Species

Affected Environment

A list of special status species (Federally Threatened or Endangered, or State Threatened or Endangered), which may occur within the area of concern, was obtained from the U.S. Fish & Wildlife Service and the Arizona Game & Fish Department. The U.S. Fish and Wildlife Service indicated that the Yuma clapper rail (*Rallus longirostris yumanensis*) - (Endangered), the Flat-tailed horned lizard (*Phrynosoma mcallii*) - (proposed threatened), and the Southwestern willow flycatcher (*Empidonax traillii extimus*) - (Endangered), may occur in the project area.

The Endangered bird species may occasionally utilize some of the canals adjacent to the area of concern for a portion of their food supply, but are most likely to prefer the immediate Colorado River area, which is within one-half (.5) mile of the project area. In any case, there is no anticipation of impacts to any species by the proposed project. The Flat-tailed lizard is generally found in dry, wind-blown, native soils associated with creosote stands on the Yuma Mesa, which is located eastward, outside of the area of concern.

Other special status species are listed for Yuma County, however, their habitat is located outside the area of concern defined for the proposed action. These include: the Bald eagle (*Haliaeetus leucocephalus*) - (Threatened), the Cactus ferruginous pigmy-owl (*Glaucidium brasilianum cactorum*) - (Endangered), the California brown pelican (*Pelecanus occidentalis californicus*) - (Endangered), the Razorback sucker (*Xyrauchen texanus*) - (Endangered), the Sonoran pronghorn (*Antilocapra americana sonoriensis*) - (Endangered), the Mountain plover (*Charadrius montanus*) - (Proposed Threatened), and the Peirson's milkvetch (*Astragalus magdalenae* var. *peirsoni*) - (Threatened), a stout

perennial of short duration, whose habitat is located at the low dunes of the Yuma desert (EPA 2002a).

The Southwestern willow flycatcher is a migrant species that was listed as endangered in 1995 (USFWS 1997). Breeding range includes southern California (from the Santa Ynez River south), Arizona, New Mexico, extreme southern portions of Nevada and Utah, extreme southwest Colorado, and western Texas. Southwestern willow flycatchers typically nest in riparian habitat characterized by dense intermediate sized shrubs or trees, such as willows, buttonbush (*Cephalanthus spp.*), box elder (*Acer negundo*), often with an overstory of scattered large trees such as cottonwoods or willows. The loss of preferred habitat along the lower Colorado River is likely responsible for observations of southwestern willow flycatchers using saltcedar for nesting substrate (USBR 1996). In addition, high rates of brood parasitism on southwestern flycatchers by cowbirds (*Molothrus ater*), has been documented (USFWS 1997). Almost all Southwestern Willow Flycatcher breeding habitats are within close proximity (less than 20 yards) of water or very saturated soil. This water may be in the form of large rivers, smaller streams, springs, or marshes. At some sites, surface water is present early in the nesting season, but gradually dries up as the season progresses. Ultimately, the breeding site must have a water table high enough to support riparian vegetation. The Southwestern willow flycatcher begins arriving at potential breeding sites as early as late April, and may continue to be present until August (EPA 2002a).

The Yuma clapper rail was listed as endangered in 1967, and is one of seven North American subspecies of the clapper rail, a hen-like marsh bird. The Yuma subspecies is gray-brown with a tawny breast, a white throat and under-tail, and bars across its flanks. The Yuma clapper rail is a large bird, measuring 36 to 42 centimeters (14 to 16 in) in length. They are found in western Arizona along the Colorado River from Topock Marsh (part of the Havasu National Wildlife Refuge Near Needles, California), south to Gulf of California in Mexico, including the lower Bill Williams and Gila River drainages. They have also been found near the Salton Sea (CA), Picacho Reservoir south of Phoenix Arizona, and at the Salt River/Verde River confluence east of Phoenix. It has been suggested that Yuma clapper rail may not have existed in the US along the lower Colorado River area until larger marshes were formed following dam construction (USFWS 1997). The largest population of Yuma clapper rails exists in the delta area (Cienega de Santa Clara) of the Colorado River in Mexico. Yuma clapper rails feed on crayfish, fishes, frogs, clams, spiders, grasshoppers, crickets, dragonflies, aquatic plant seeds, bird eggs, and crustaceans. In the United States, the Yuma clapper rail seeks out nesting sites among tall cattails and bulrushes along the margins of the shallow stable ponds of freshwater marshes. They often prefer freshwater and brackish (mixed fresh and salt-water) marshes with dense cattails, bulrushes, and other aquatic vegetation. Yuma clapper rail establishes breeding territories around March-April and builds nests in nearby vegetation, and are often highly territorial during breeding. The birds remain on their US breeding grounds from mid-April to mid-September, when they migrate south to Mexico for the winter. It is thought that the bird lays about six eggs in the nests, which are constructed on dry hammocks or in small shrubs amid dense cattails, just above water level. Reasons for their decline include primarily human-related modifications of wetland

habitat, such as channelization, bank stabilization, and water impoundments (Matthews 1990).

The Yellow-billed cuckoo (*Coccyzus americanus*) - (Candidate), is a summer resident in Arizona (Corman and Magill 2000) occurring along the lower Colorado River as well as elsewhere in Arizona. Although not currently listed as threatened or endangered, the Yellow-billed cuckoo is at a critically low population level, not only in California, but also in the northern Rocky Mountains, the Great Basin, and the Pacific Northwest (Gaines and Laymon 1984). It is associated with floodplain forests of dense cottonwood-willow or mesquite (Corman and Magill 2000). The Yellow-billed cuckoo arrives on its breeding grounds in mid-to late May and nests from early June through August and frequently into September, with the peak occurring in mid-July and early August (Hamilton and Hamilton 1965). The majority of yellow-billed cuckoo nests have been located in willows and to a lesser extent in Fremont cottonwoods (Hamilton and Hamilton 1965). Nests have also been found in Arizona alder (*Alnus oblongifolia*), tamarisk (*Tamarix spp.*), sycamore (*Plantanus wrightii*), and velvet ash (*Fraxinus pennsylvanica velutina*) (Corman and Magill 2000). Of importance to nesting success is dense shade. Yellow-billed cuckoos nest an average of 5.2 m above ground (Corman and Magill 2000). In the lower Colorado River midsummer temperatures are often over 43° C, and such temperatures would kill embryos within one hour of unprotected exposure. The removal of cottonwood and willow stands forming canopy heights above 15 m and replacing it with tamarisk (rarely over 7.5 m) decreases the amelioration of solar radiation, ambient temperatures (Hunter 1987), and possibly relative humidity around nests (EPA 2002a).

Environmental Consequences

The No Action Alternative would not affect endangered and threatened species, species of concern, and sensitive species, because construction associated with the proposed action would not occur and operations of the septic systems would not change. Direct and indirect long-term impacts would not occur to threatened and endangered species and their habitats with the implementation of the No Action Alternative.

Alternatives 2 and 3 would not affect endangered species, threatened species, species of concern, sensitive species, special category (plant) species, and sensitive/critical habitat because activities associated with these alternatives would occur only in urban areas previously disturbed. There is no longer any wildlife habitat in the project area. Long-term and short-term direct and indirect adverse impacts to endangered species would not be anticipated under any of the action alternatives.

3.3 Cultural Resources

Affected Environment

Cultural resources are any prehistoric or historic district, site, or building, structure, or object considered important to a culture, subculture, or community for scientific,

traditional, religious, or other purposes. Cultural resources include archaeological resources (both prehistoric and historic), historic architectural resources, and traditional cultural resources. Only significant cultural resources (as defined in 36 CFR 60.4) are considered for potential adverse impacts from an action. Significant archaeological and architectural resources are either eligible for listing, or listed on, the National Register of Historic Places (NRHP). Significant traditional cultural resources are identified by Indian tribes or other groups, and may also be eligible for the NRHP. The project area has not been surveyed for cultural resources, however, a Class I survey (archival research) has been conducted. Personal communication with the State Historic Preservation Office (Bilsbarrow, personal communication) indicated that a Class I background investigation was appropriate to initially ascertain the need for a 100% pedestrian survey. Upon completion of the background research, results of the Class I indicated that, although there are recorded historic canals in the project area, all of the remaining land within the Colonia has been heavily disturbed, negating the need for a pedestrian survey.

The cultural resource sites previously recorded within the project area include:

AZ X:6:63 (ASM) – The West Main Canal

AZ X:6:30 (ASM) – The West Main Canal Turnout and Check Structures

AZ X:6:87 (ASM) – Thacker Lateral Canal

The sites were recorded as historic canal sites or canal features. Recordation of the historic elements of AZ X:6:30 (ASM) occurred within the boundaries of the project area (Pfaff, *et. al.* 1992). On July 12, 2004, ASM designated all elements of the West Main Canal as a single site number; AZ X:6:63 (ASM), therefore, site AZ X:6:30 (ASM) is contained within AZ X:6:63 (ASM) – The West Main Canal. A segment of AZ X:6:87 (ASM) was recorded south of the project area (Stone 1996). Neither canal segment within the project area has been evaluated for eligibility to the National Register of Historic Places.

During the Class I archival research, no other cultural features or deposits were identified within the project area.

Environmental Consequences

No construction activities that have the potential to disturb surface/subsurface cultural resources, would occur with the implementation of the No Action Alternative. As a result, cultural resources would not be affected with the selection of the No Action Alternative.

Under Alternatives 2 and 3 all construction will be limited to previously disturbed areas. Neither canal site will be impacted by the implementation of either of the action alternatives. As indicated in Figures 4 & 5, several new manholes and gravity pipes are proposed within proximity of the two canals. In order to ensure that neither canal is affected by the proposed project, a physical buffer shall be established 20 feet from either

canal or to any canal structures, in those locations where new manholes or gravity lines are to be located in the vicinity of the sites. In accordance with Section 106 of the National Historic and Preservation Act of 1966, as amended through 2000, if previously unidentified cultural resources are discovered during construction, the contractor will stop work immediately at that location and take all reasonable steps to secure the preservation of those features and the State Historic Preservation Officer (SHPO) will be notified. SHPO will, in turn, notify the appropriate agency(ies), when needed, to evaluate the significance of the resource

3.4 Hazardous And Solid Waste

Affected Environment

Research of existing databases was conducted in February, 2006 for the presence of hazardous materials within the limits of the project area. The research included review of applicable federal and state agency records and a review of aerial photographs. Records reviewed for the project included the EPA Toxic Release Inventory System list, the Superfund Amendments and Reauthorization Act (SARA) list, the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) list, the Resource Conservation and Recovery Act (RCRA) database, Arizona Department of Environmental Quality (ADEQ) Arizona CERCLA information and data system (ACIDS) list, the Arizona Water Quality Assurance Revolving Fund (WQARF) project priority list, ADEQ Drywell Registration list, the ADEQ Hazardous Materials Incident Logbook, the Arizona Directory of Closed Waste Landfills and Closed Solid Waste Dumps, the Arizona Directory of Public Municipal Solid Waste and Rubbish Landfills, and the ADEQ Leaking Underground Storage Tank (LUST) and Underground Storage Tank (UST) list.

The records search indicated that a total of eight (8) sites within, or immediately adjacent to the project area are listed on one or more of the databases:

Location	Type
Leon E. Leffel 2743 W. 1 st Street	Underground Storage Tank
Britain & Sons Farms 4330 Riverside Drive	Underground Storage Tank
Bill's Tractor and Auto Repair	Small Quantity Generator of Hazardous

321 May Ave.	Waste
Southern Sanitation Unc 301 May Ave.	Underground Storage Tank
Oasis Gardens RV Park 3225 W. 8 th Street	Wastewater Treatment Facility
Circle K Store #2700212 3640 W. 8 th Street	Leaking Underground Storage Tank (open case)
Valley Store 3748 W. 8 th Street	Leaking Underground Storage Tank (case closed, 12/9/98)
Queen Carpet Corporation 2500 W. 1 st Street	Leaking Underground Storage Tank (case closed, 11/21/94)

As indicated by the table, one leaking underground storage tank site remains as an open case; the Circle K Store located at 3640 W. 8th Street, on the southern boundary of the project area. Vapor extraction and air sparge remediation for the removal of methyl tert butyl ether (MTBE) concentrations is currently in the planning stages for an area immediately adjacent to the gasoline dispensers (Nathan Russel, personal communication).

Environmental Consequences

Potential disturbance of hazardous substances would not occur with the implementation of the No Action Alternative. As a result, any hazardous substances that may be present would not be affected with the selection of the No Action Alternative.

Implementation of either Alternative 2 or 3 will require the excavation of trenches for the placement of pipe throughout the project area. If construction occurs prior to the remediation activities at the Circle K Store, pipe placement should not occur on the Circle K property between the gasoline dispensers and the sidewalk along the north side of 8th Street. This mitigation measure will result in no effect regarding hazardous materials for the proposed project.

If previously unidentified or suspect hazardous materials are encountered during construction activities due to the implementation of the either Alternative 2 or 3, work will stop at that location and the ADEQ will be contacted. Such locations will be investigated and proper action implemented prior to the continuation of work in the area of concern.

Hazardous chemicals used during construction of the wastewater collection system would be limited to sealers, paints and oil lubricants. Empty containers would be removed from the site and properly disposed. No impacts of hazardous materials or generation of waste

would occur due to construction with either of the action alternatives.

Implementation of Alternatives 2 and 3 could potentially create or increase the need for solid waste disposal off site. The increase of solid waste that would occur under Alternatives 2 and 3 would be in the form of sludge and would have a minor impact on the processing facilities at the Figueroa WPCF.

3.5 Energy And Natural Resources

Affected Environment

Electricity is supplied to the Colonia by Arizona Public Service. The electricity distribution system appears adequate for the community's needs, as no evidence of brownouts or other forms of power shortages have been identified. Natural gas is provided to the Colonia by Southwest Gas.

Water and sunlight are the only natural resources consumed in significant quantities by the Colonia. Water supply and use are discussed in the Surface Water and Groundwater sections of this EA.

Environmental Consequences

None of the Alternatives are expected to impose significant impacts on energy supplies or natural resources. Alternative 2 would include three pumping stations, and Alternative 3 would include 14 pumping stations that would impose a moderate increase on electricity usage. Alternatives 2 and 3 are designed to accommodate the projected B&C Colonia population growth of build out within 8-10 years, and 1% from the 11th year thereafter (population growth beyond the 11th year relates to slightly increasing residential density through time). The systems would place additional but not significant demands on energy resources.

3.6 Noise

Affected Environment

Noise is one of the major concerns associated with construction-related activities. Noise is commonly classified as 1) general audible noise in the range heard by humans 2) special noise such as sonic booms or artillery blasts that have a sound pressure of shock component, and 3) noise-induced vibration (e.g., from sonic booms and artillery blasts) which may involve noise levels that can cause physical movement and damage to natural and man-made structures (EPA 2002a).

Environmental Consequences

Noise produced within the project area during the wastewater system construction activities would result in some localized short-term impacts in the Colonia. Normal urban

noise levels range from approximately 55-80 decibels. Noise during construction would be expected to range from 65-95 decibels.

The daily average-day-night noise level is the accepted measure used for describing noise effects on communities. The daily-average day-night noise level during construction would only be slightly less than the loudest noise during the day since the loudest noise event controls the 24-hour average (Wyle 1992, in EPA 2002a). The surrounding community may experience temporary annoyance due to an increase in construction activity, however, construction is expected to be completed within a short time period and the community would not be significantly affected by construction related noise. Existing background noise levels in the project area are probably affected by the following sources: occasional construction activities, wind, traffic and other common noises of a small community.

None of the alternatives is expected to impose significant long-term impacts on the project area. Background noise levels may be elevated during construction activities associated with Alternatives 2 and 3. Construction noises tend to be short in duration and concentrated around the immediate work area. Construction related noise will be mitigated through the use of standard procedures such as specific, weekday hours of operation and the use of mufflers on construction equipment (EPA 2002a).

3.7 Public Health And Safety

Affected Environment

Discharges of raw sewage in the community, either from failing septic systems or open cesspools are a current health concern in the B&C Colonia, as bacterial, viral and parasitic infections in human populations may occur. Untreated wastewater has the potential to support a variety of microscopic and submicroscopic organisms that can cause infectious disease, including *E. coli* (*Escherichia coli*), *Giardia* (*Giardia lamblia*), cholera (*Vibrio cholerae*), hepatitis A (*Enterovirus ssp*), *Cryptosporidium* (*Cryptosporidium parvum*), and helminth eggs. Illnesses can occur by consuming water contaminated with these organisms, by eating raw or undercooked foods that have been in contact with contaminated water, and by poor personal hygiene that allows the spread of diseases either directly or indirectly through inter-human contact. Public education programs on public disease prevention and control are offered in the Yuma region by the Yuma County Health Department and the University of Arizona Cooperative Extension Program. Other services include immunization programs and referrals for communicable and non-communicable disease and vector control.

Valley Fever cases have increased in the past few years within Yuma County as a result of the inhalation of desert fugitive dust. Any activity that stirs up dust, such as the tilling of soil by agricultural cultivation practices or housing development increases the probability and risk of contracting the disease. In addition, *mosquitoes* breeding in wetlands and marshes in all areas of Yuma County have recently become a concern as outbreaks of Dengue Fever and Encephalitis have been increasing throughout the State of

Arizona. Several programs have been initiated by the Arizona Department of Agriculture to address these issues, including: integrated crop management and cultural practice workshops, an integrated pest management program to manage insects, rodents, nematodes, weeds and diseases; field scouting, educational programs for the public and agricultural community; economic thresholds and chemical and biological control to reduce the use of various chemicals.

Environmental Consequences

The No Action Alternative would continue the health risk for waterborne disease in the project area at current or increased levels. Disease outbreaks could also occur in the long term. As septic systems may not be properly maintained over time, implementation of the No-Action Alternative could result in a potential long-term negative indirect impact to public health in the area of concern.

Either of the two action alternatives would likely decrease the health risk in the project area, resulting in short-term and long-term positive impacts to public health, due to reducing potential contact with untreated wastewater. Potential leakage from septic systems would be eliminated. The interactive populations would also be less likely to be victimized by waterborne communicable diseases resulting from exposure to contaminated groundwater used as potable water. Short and long-term negative impacts would not occur to the public health in the area of concern with the implementation of the preferred action or any of the other action alternatives (EPA 2002a).

3.8 Population And Economics

Affected Environment

The City of Yuma has a population of approximately 138,000 (Census 2000). B&C Colonia has a current population of approximately 5,100 (Census 2000). Today, the Colonia is a small, unincorporated community of mainly farm workers, and comprises 836 households. Specific surveys regarding household income have not been conducted specifically for the Colonia. The type and sizes of residences in this area represent mid to lower income households.

Environmental Consequences

The number of jobs and the total workforce in the area would remain the same with the implementation of the No Action Alternative. Therefore, no impact on local employment in the area of concern would occur with selection of the No Action Alternative.

Demand for housing and vacancy rate would not be expected to change in the short-term with the implementation of the No Action Alternative.

Under implementation of either Alternative 2 or 3, the number of temporary jobs that the project would generate is relatively low. It is unlikely that a significant number of

workers would relocate to the region for project implementation. Therefore, there would be minimal short-term direct and indirect socio-economic impacts in the region with the implementation of any of the alternatives. The effect of construction and maintenance of either action alternative on local employment would be less than significant. The wastewater collection system improvements may make the area a more desirable place to live, which could result in a slight increase in population, but this amount would likely be less than significant.

Construction workers would not need to relocate from outside the area to construct the project. Since construction workers would be local residents, demand for housing is not expected to change as a result of implementing either Alternative 2 or 3, and the housing vacancy rate would not be affected. No significant long or short term direct or indirect impacts would occur.

Increased utility costs would likely result from implementation of either of the two action alternatives. The community would ensure that costs are equitably distributed among wastewater users, thereby minimizing the potential for significant adverse impacts to any specific user groups. Higher utility costs and impact fees could be phased in over a period of time to spread out the utility fee increases and prevent a substantial immediate jump that could adversely affect certain users. While increased utility costs may affect residents and businesses in the project area, these costs would not create a significant adverse financial burden (EPA 2002a).

3.9 Environmental Justice

Affected Environment

As the B&C Colonia is part of a larger community, statistics regarding income are difficult to separate from larger geographic regions. However, the 2000 U.S. census delineated minority statistics based upon surveys of individual blocks in the Colonia. Considerations of environmental justice are triggered by determination of whether the minority population percentage in the project area is either greater than 50 percent or meaningfully greater than the minority population percentage in the general population (EPA 1997b). The concept of race as used by the Census Bureau reflects self-identification and self-classification by people according to the race with which they most closely identify (U.S. Census Bureau 2000). The population of Yuma County in the year 2000 was 160,026, with the total listed in the “White” category as 109,269 (68% of the total). The census block survey of the B&C Colonia in the year 2000 indicated a total population of 5,170, with 3,396 (65.7%) listed as “Hispanic or Latin” (US Census 2000). The minority population of B&C Colonia is therefore greater than 50% of the minority population percentage in the general population. The percentage of impoverished people in the project area can be assumed to be significantly greater than that of the general population based upon the definition of a Colonia.

Environmental Consequences

Both of the action alternatives would positively benefit minorities and low-income persons. Provision of wastewater services is expected to increase the standard of living in the project area. The No Action Alternative would merely continue current practices in which residents, the majority of whom are minorities and low income, must install and maintain potentially inadequate on-site septic systems.

Inadequate and failing septic systems present potential health risks. These impacts may fall disproportionately on minority and low-income residents of the project area, based on the concept of environmental justice. Alternatives 1 or 2 would likely have a beneficial impact in the short and long term on environmental justice issues.

3.10 Cumulative Effects

Cumulative impacts result when an incremental impact associated with an action is considered additively with impact of past, present, and reasonably foreseeable actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7).

The accumulation of individual impacts to comprise cumulative impacts may result from individually *minor* but collectively *significant* actions that occur within the same temporal and spatial context (EPA 2002a). The proposed project itself does not significantly contribute to any other area or system, as the Figueroa plant currently has more than enough capacity to handle the increased wastewater. No other projects in or near the Colonia will contribute significantly to cumulative environmental impacts.

The cumulative impacts of the proposed project, combined with other projects, will therefore not be significant.

3.11 Conclusion

An examination of either Alternative 2 or Alternative 3 reveals that project objectives may be implemented without significant environmental impacts. Potential minor negative or adverse effects associated with the implementation of either alternative could be minimized through the use of appropriate best management practices and control technologies. Construction activities must be conducted in a manner that will minimize potential environmental impacts. Generation of dust and PM₁₀ emissions must be minimized using appropriate construction best management practices and accepted dust control methods. Construction traffic could be minimized, and controlling access to the construction site would reduce the potential for adverse environmental effects due to transportation resources. Construction activities should be limited to normal weekday working hours, thereby minimizing the detrimental effects to local residents associated with construction noise. If Alternative 3 is chosen for implementation, strict traffic controls will be required on Avenues B and C during construction.

The positive effects realized by implementing either Alternative 2 or 3 include: 1) elimination of leakage and infiltration of untreated wastewater from the failing septic tanks into the groundwater table; 2) reduction of potential exposure of the population to

human pathogens; 3) a reduction in community health risk, and 4) a reduction in offensive odors.

This EA has identified no significant impacts to the environment resulting from the implementation of either Alternative 2 or Alternative 3.

4.0 Appendix A

Figures

Figure 1.

Figure 2.

Figure 3.

5.0 References

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6.0 List of Agencies Consulted

The following agencies were contacted during preparation of the Preliminary Draft:

Agency	Letter	Contact Person	Comments
Arizona Game & Fish Dept.	Yes March 3, 2006	Sabra Schwartz HMDS Coordinator 602 789-3618	Forthcoming
State Historic Preservation Office	No	Matthew Bilsbarrow 602 542-4009 Bill Collins 602 542-4009	Personal contacts regarding requirement for cultural resource survey
Yuma County Department of Development Services	No	Nancy Ngai Nancy.Ngai@co.yuma.az.us	Personal contacts regarding data for inclusion in EA.
Environmental Protection Agency	No	Thomas Konner 415 972-3408	Personal contact regarding EPA NEPA procedural details.
Yuma Public Works Department	No	Susanna Hitchcock 928 373-4536	Personal contact regarding WWTF capacities in Yuma.